televic
conference

D-CERNO©

Wired Conference System

Installation and User Manual

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Section 1 – General Information

1. Copyright Statement

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3. Conformity info

The D-Cerno Wired Conference system is compliant with following standards:

- EN60065
- EN55103-1/-2
- IEC60914

4. Safety Instructions

The D-Cerno Conference system is state of the art and has been designed to meet quality. Nevertheless, the individual components of the conference system can cause danger for persons and material assets if

- the conference system is not used as intended,
- the conference system is set up by personnel not familiar with the safety regulations,
- the conference system is converted or altered incorrectly,
- the safety instructions are not observed.

4.1. Important safety instructions

1. Read Instructions

All the safety and operating instructions should be read before the product is operated.

1. Retain Instructions

The safety and operating instructions should be retained for future reference.

2. Heed Warnings

All warnings on the product and the operating instructions should be adhered to.

3. Follow Instructions

All instructions for installation or operating / use should be followed.

4. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

5. Ventilation

Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

6. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

7. Attachments

Do not use attachments not recommended by the product manufacturer as they may cause hazards.

8. Water and Moisture

Do not use this product near water or in a moistures environment - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool, in an unprotected outdoor installation; and the like.

9. Accessories

Only use attachments/accessories specified by the manufacturer. Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

10. Moving

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

11. Power Sources

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12. Power Lines

An outdoor system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.

13. Grounding or Polarization

Do not defeat the safety purpose of the polarized or ground-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

14. Power-Cord Protection

Power-supply cords should be routed to that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plug, convenience receptacles, and the point where they exit from the product.

15. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

Not applicable when special functions are to be maintained, such as evacuation systems

16. Overloading

Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

17. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

18. Inflammable and Explosive Substance

Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.

19. Heavy Shock or Vibration

When carrying this product around, do not subject the product to heavy shock or vibration.

20. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

21. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.

b. if liquid has been spilled, or objects have fallen into the product.

c. If the product has been exposed to rain or water.

d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

e. If the product has been dropped or damaged in any way.

f. When the product exhibits a distinct change in performance-this indicates a need for service.

22. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

23. Safety Check

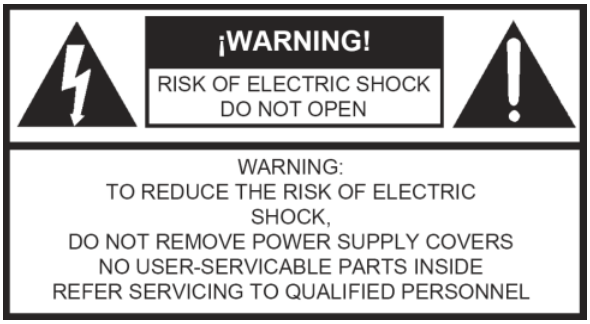
Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

24. Coax Grounding

If an outside cable system is connected to the apparatus, be sure the cable system is grounded. U.S.A. models only: Section 810 of the National Electrical Code, ANSI/NFPA No.70-1981, provides information with respect to proper grounding of the mount and supporting structure, grounding of the coax to a discharge apparatus, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

4.2. Power Connections

For permanently connected equipment, a readily accessible disconnect device shall be incorporated in the fixed wiring; For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.



This label may appear on the bottom of the apparatus due to space limitations.

The lightning flash with an arrowhead symbol, with an equilateral triangle, is intended to alert the user to the presence of un-insulated 'dangerous voltage' within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Warning:
To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. Do not open the cabinet; refer servicing to qualified personnel only.

Warning:
To prevent electric shock, do not use this (polarized) plug with an extension cord receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Attention:
Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.

Attention:
Equipment with or without ON/OFF switches have power supplied to the equipment whenever the power cord is inserted into the power source; however, the equipment is operational only when the ON/OFF switch is in the ON position. The power cord is the main power disconnect for all equipment.

5. D-Cerno System Information

5.1. General System Architecture

5.1.1. Components

Central units

D-Cerno CU : basic central unit for D-Cerno system

D-Cerno CU-R : The D-Cerno CU-R is the exclusive central unit for the D-Cerno system and comes with an integrated USB recording module and web server.

The D-Cerno CU(-R) is the heart of the system meant to control small to mid-sized meetings.
It controls 50 delegate units and can be expanded up to 150 units by a master-slave configuration with multiple central units. (*)

Control of the system is easy and intuitive via the touch sensor buttons and a large LCD menu. Next to this the D-Cerno CU-R offers also the possibility to control and configure the system via the integrated webserver and USB recordingmodule.

At the front of the D-Cerno CU-R units there are two USB connections to connect a USB storage device for direct recording of the meeting.
To guide the meeting several conference modes are implemented. Direct access, Request, Push to talk, FIFO and Vox control (*).

Delegate units are connected in daisy chain over the 4 bus connections (4 branches or 2 closed loops). When cabled in loop, a patent pending redundancy mechanism garantees that the system continues to work, should a cable break or be disconnected for some reason.

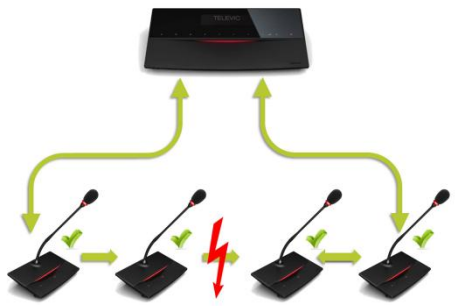


Figure 5.1.1: D-Cerno Chairman Unit

The delegate units

D-Cerno delegate units make use of touch sensor buttons .
The system is designed to work out-of-the box, Wiring is easy, shielded Cat5 cables from unit to unit. While connecting there is no need to worry about the IN and OUT port as the unit detects the direction of the signal flow automatically.
There is no initialization procedure required. After wiring the system, it is ready for operation.

(*) not yet implemented

Section 2 – System Components

6. Table Top Delegate units

6.1. Introduction

The delegate units consist out of Discussion and Chairman units. Both are used for speech reinforcement in a conference room. The chairman units are used to guide and control an ongoing discussion.

6.2. Controls and indicators

The D-Cerno delegate units have the following features:

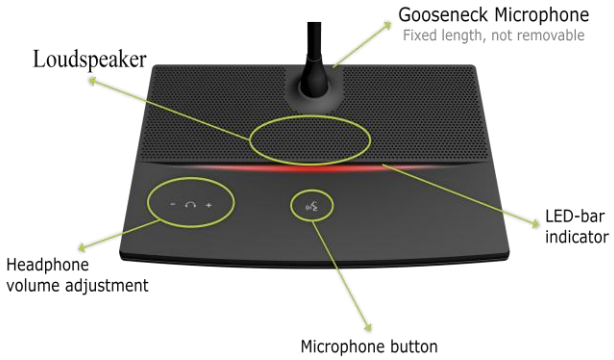


Figure 6.2.1: D-Cerno Discussion Unit

1. **Microphone touch sensor button**: Activation/deactivation of the microphone. Indication LEDs show the status of the microphone. (red : active, green : request)
2. **Loudspeaker**: Distributes the floor channel. Mutes in case microphone is active.
3. **Headphone connectors:** Connection of headphone to the wireless unit. Mono- and stereo headphones can be used.
4. **Volume touch sensor buttons:** Change the volume level of the headphones.
5. **PRIOR button: (chairman unit only)** permanently deactivates the microphone of all active units.
6. **Ring Led**

   The ring led is illuminated when the microphone is on
7. **NEXT button: (chairman unit only)** Grants the floor to the next delegate in the waiting list.

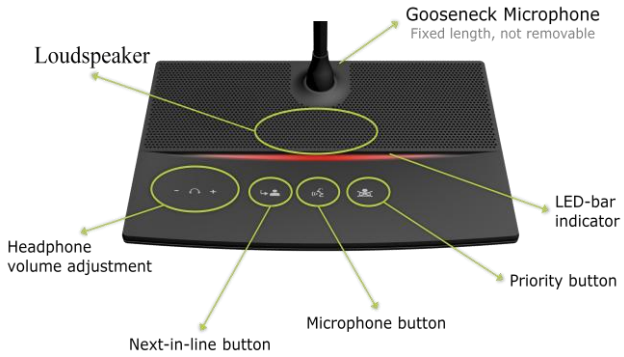


Figure 6.2.2: D-Cerno Chairman Unit

6.3. Installation

D-Cerno units offer free input/output connectivity to allow flexible installation.

The delegate units can be connected as a daisy chain branch or in loop to ensure redundancy

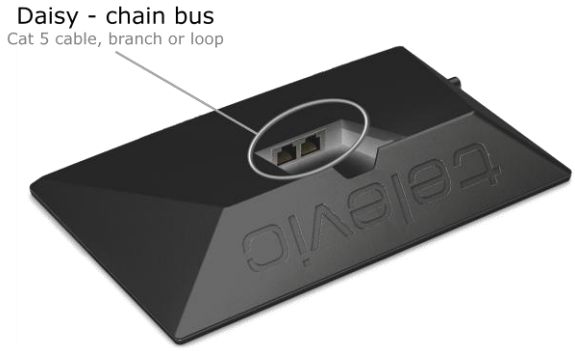


Figure 6.3: D-Cerno connectivity

6.4. Microphones

6.4.1. Introduction

The D-Cerno microphone has a uni-directional response for optimum performance even in noisy conditions, and has a very low susceptibility to RF-interference from mobile phones.

6.4.2. Electrical and acoustic properties

Table 6.4.2: Microphone characteristics ????

Transducer type	Back electret (condenser) ???
Operating principle	Pressure gradient ???
Polar pattern	Uni-directional, cardioid ???
Frequency response	130 Hz – 150000 Hz
Nominal impedance	1kOhm (at 1 kHz, drop resistance = 1k2, Vdd = 3.3VDC)
Load impedance	> 5kOhm ????
Max.SPL at 1 kHz	120 dB SPL ????
Equivalent sound pressure level	< 25 dB(A) ????
Free field sensitivity	7mV/Pa, +/- 3 dB at 1 kHz or (-43dB, 0dB=1V/Pa at 1kHz) ????
Power supply	3.3V DC, 0.5 mA ????
Consumption	0.5 mA (without LED ring); ??? max. 25 mA (with illuminated ring)

6.5. Dimensions

Mechanische tekeningen voorzien (afmetingen)…

6.6. Maintenance

6.6.1. General

Caution:
Do not put any objects on top of the units. Object falling through the holes of the unit can cause damage.

Caution:
Do not install the units in a location near heat sources as radiators, air ducts. or direct sunlight.

Caution:
Make sure the units are not exposed to excessive dust, humidity, mechanical vibration or shock.

6.6.2. Cleaning

Caution:
Do not use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the units.

To keep its original condition it is advised to periodically clean the unit:

- Use a clean soft cloth that is not fully moist.
- Make sure the device is completely dry before usage.

7. Central Control unit

7.1. Introduction

The D-Cerno CU is the heart of the system. It controls all delegate units and can interconnect to other systems either via the external audio connections

The system has a built in power supply to drive up to 50 units and can operate in a standalone mode. Initialization and configuration can be done via the integrated menu.

Figure 6.1: D-Cerno connectivity

7.2. Controls and indicators

All controls are done via touch panel by means of an intuitive user interface menu (see chapter 6.4)

A user can activate or select a control or menu item by touching one of the symbols beneath the display , with his finger , without the need to push.

7.3. External Connections

1. +48V DC power connector

Figure 7.3.1: DC power connector

2. 4 x RJ45 ports to connect up to max 50 delegate units. (25 units per branch or loop)

Figure 7.3.2: system ports

The green indicator points to detected signal , without errors (devices detected).
The yellow indicator points to error or no signal .detected (no devices connected)

3. 2 x RJ45 ports

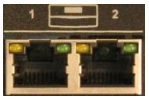


Figure 7.3.3: Master – Slave ports

Reserved for master – slave connection (not yet implemented)

4. LAN connector (D-Cerno CU-R only)

Figure 7.3.4: LAN connector

Webserver connection

5. Two unbalanced RCA audio output connectors to extract analog audio floor signal

Figure 7.3.5: Aux Out

The green indicators light up when there is an output signal present

6. One unbalanced RCA analog audio input connector to add external signal to the floor

Figure 7.3.6: Aux Out

The red indicators light up when there is an overload of the input signal occurring

7. One balanced XLR analog audio connector to add external signal to the floor

   The red indicators light up when there is an overload of the input signal occurring

   The AUX In connections on the central unit have a XLR 3 Female connector. So a cable with XLR 3 Male connector should be used to insert an external signal.

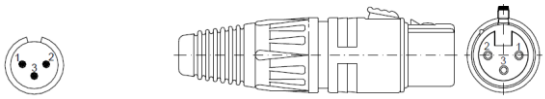


Figure 6.3.7: D-Cerno connectivity

Pin 1	Shield
Pin 2	Signal +
Pin 3	Signal -

8. Headphone connector

   Mono or stereo headphones with 3.5mm connector may be used

Figure 7.3.8: Headphone connector

7.3.1. Power Supply

The power supply can operate on an inputvoltage range of 100-240Vac , 47-63Hz.
The output voltage is 48V dc – 3.15A max

8. System cables

The system cables used as connection between the central unit and the contribution equipment, and from unit to unit is Cat5e AWG 24 FTP shielded cables with shielded RJ45 plugs.

Televic has standard pre-made cables available in different lengths:

2m	ICC5/2	71.60.4002
5m	ICC5/5	71.60.4005
10m	ICC5/10	71.60.4010
20m	ICC5/20	71.60.4020

The voltage level at the output of the central unit is 48 V. Every meter of cable and conference unit in a branch causes a voltage drop. Every unit in a branch should receive at least 30V ??.

Delegate units will automatically shut down if the supplied voltage is too low.

Section 4 – System Configuration

9. Initialisation

All delegate units are initialised automatically as soon as they are connected . Delegate units may be connected or disconnected while the system is active. There is no SW limitation on the amount of delegates that can be initalised , however , due to the limitation of the internal power supply , correct functionality is only guaranteed up to 50 delegate units per CU.

10. Configuration

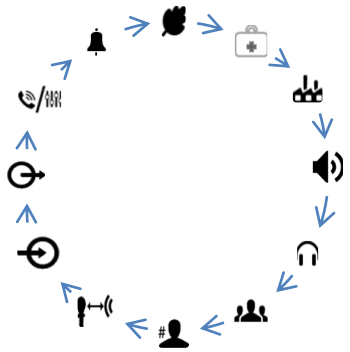
10.1. Menu structure

The menu structure on the next pages can be used as a quick reference guide to configure the conference systems.

10.1.1. Overview:

The menu structure consists out of 4 levels :

- Main menu and Config menu selection
- 1st level configuration menu is a ringstructure that allows to scroll through the different configuration menu items



- 2nd level is adjustment settings within selected menu item
- 3rd level is volume adjustments for Aux in/out

Menu navigation symbols

↓ = acknowledge setting or go one level lower in the selected menu item

↑ = return one level higher in the menustructure

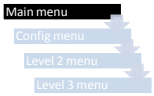
< = move left in the menu

> = move right in the menu

= config menu

= selected item is highlighted by a frame around it

10.1.2. Menu items



Main menu

Start up of CU…..

↑ < > ↓

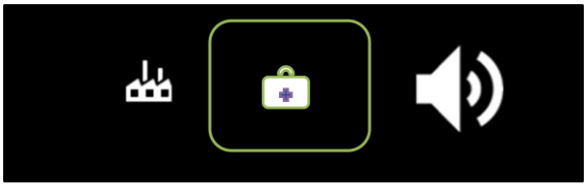
↑ < > ↓

…….screen after startup

↑ < > ↓

Select ↓ to enter the Configuration menu

Config menu System Info



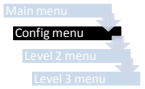
↑ < > ↓

Get System Info

Config menu Volume

↑ < > ↓

Adjusting volume of loudspeakers



Config menu Headphone

↑ < > ↓

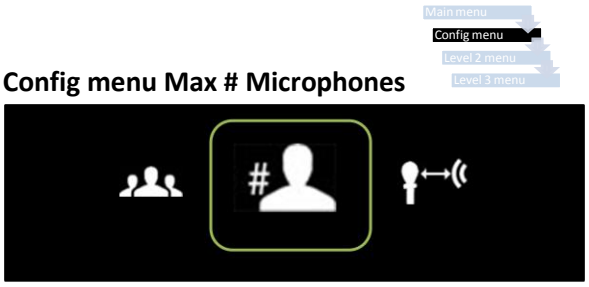
Adjusting headphone volume

Config menu Conference mode

↑ < > ↓

Set conference mode

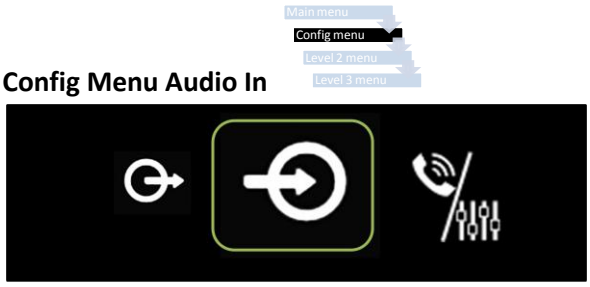
Config menu Max # Microphones



↑ < > ↓

Set allowed max number of microphones

Config Menu Audio In



↑ < > ↓

Enter auxialiary input settings

Config menu Mic Preset

↑ < > ↓

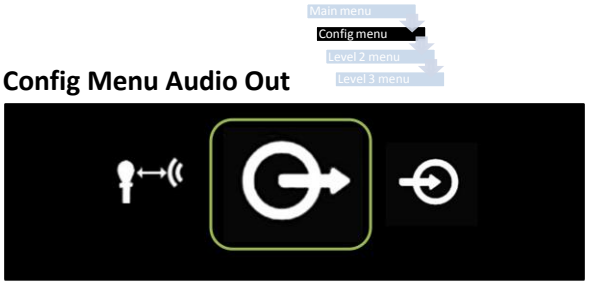
Set microphone limiter gain setting

Config Menu N-1 / External Equalizer

↑ < > ↓

Select N-1 or external equalizer mode

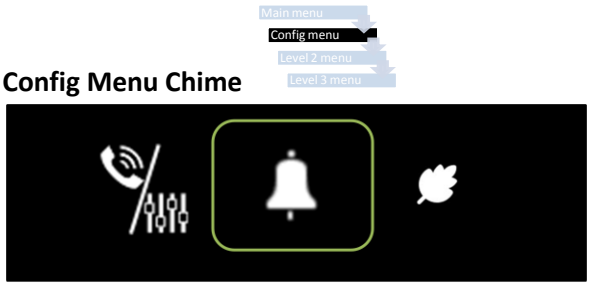
Config Menu Audio Out



↑ < > ↓

Enter Auxialiary output settings

Config Menu Chime



↑ < > ↓

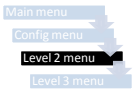
Enter chime setting

Config Menu ECO

↑ < > ↓

Enter energy saving settings

Level 2 menu Volume setting



↑ < > ↓

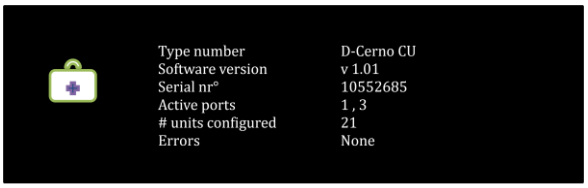
Use < > arrows to set speaker volume

Config menu Factory Settings

↑ < > ↓

Enter factory settings selection

Config menu System Info



↑ < > ↓

Level 2 menu Headphone Volume setting

↑ < > ↓

Use < > arrows to set headphone volume

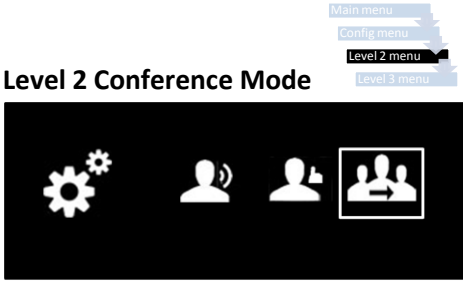
Level 2 Conference Mode

(see also chapter 10.1.3 operating modes)

↑ < > ↓

Request mode

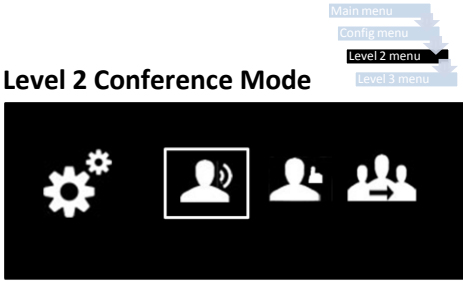
Level 2 Conference Mode



↑ < > ↓

FIFO/Override mode

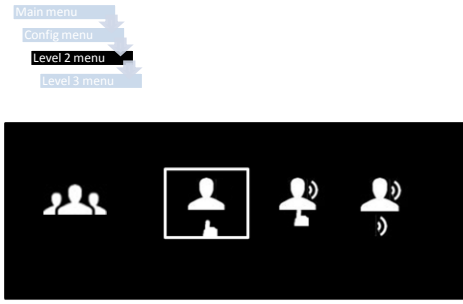
Level 2 Conference Mode



↑ < > ↓

Direct Access mode
In direct access mode , a selection out of 3 activation modes be chosen:

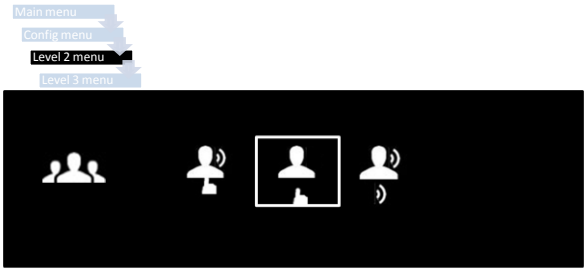
Level 2 Activation type : toggle microphone on/off



↑ < > ↓

Delegate can activate or de-activate his microphone by toggling on the mic symbol

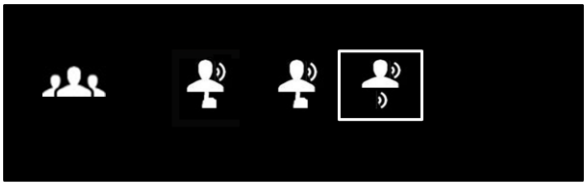
Level 2 Activation type : push to talk



↑ < > ↓

The delegate's microphone is activated as long as the delegate keeps his finger on the mic symbol

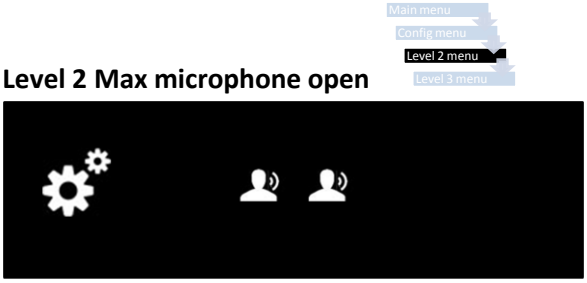
Level 2 Activation type : VOX



↑ < > ↓

Activation of delegate's microphone by sound detection

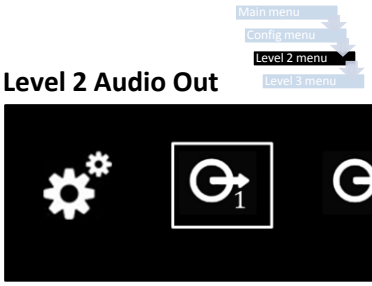
Level 2 Max microphone open



↑ < > ↓

Max number of microphones allow on at the same time is visualized by number of : can be set between 1 and 8

Level 2 Audio Out



↑ < > ↓

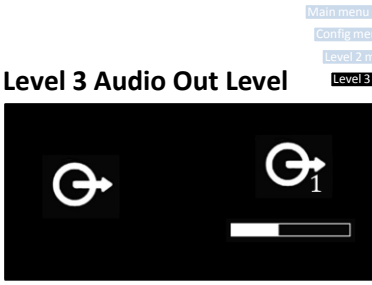
Select auxiliary output 1 or 2 settings via < > arrows and enter settings via ↓ arrow

Level 3 Audio In level

↑ < > ↓

Set audio level of selected auxiliary input via < > arrows

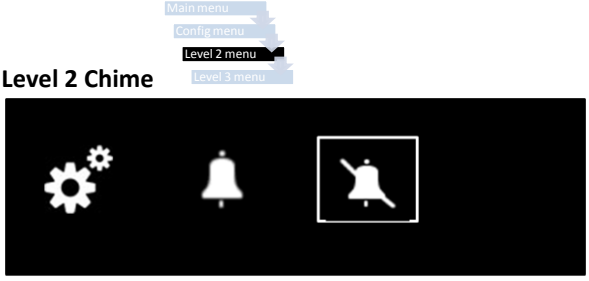
Level 3 Audio Out Level



↑ < > ↓

Set audio level of selected auxiliary output via < > arrows

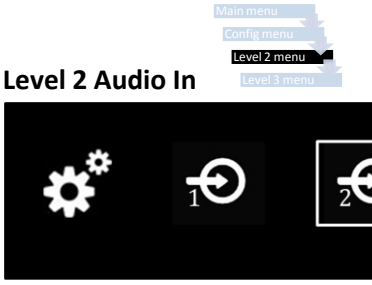
Level 2 Chime



↑ < > ↓

Select chime on or off

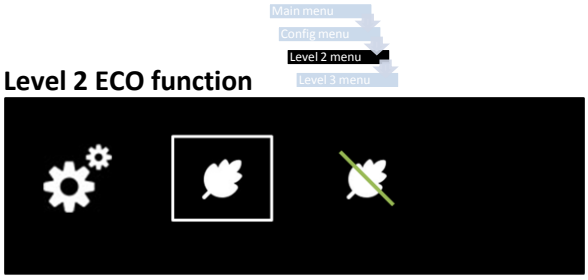
Level 2 Audio In



↑ < > ↓

Select auxialiary audio input 1 or 2 settings via < > arrows and enter settings via ↓ arrow

Level 2 ECO function



↑ < > ↓

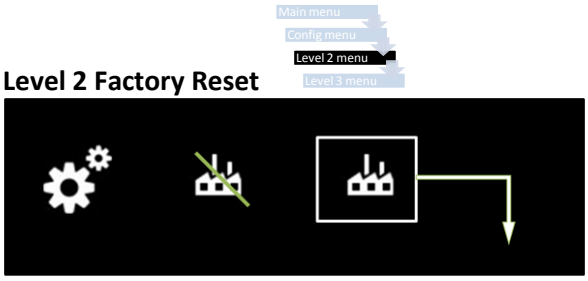
Switch ECO setting on or off

Level 2 Restore Factory settings

↑ < > ↓

Settings are as selected by the user

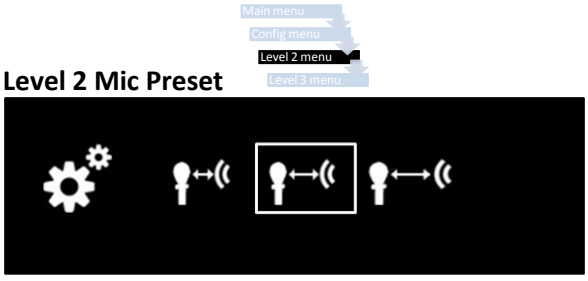
Level 2 Factory Reset



↑ < > ↓

Confirm restore factory settings by selecting ↓ arrow

Level 2 Mic Preset



↑ < > ↓

There are 3 microphone limiter gain presets available, depending of distance between microphone and speaker (close , medium , far)

Section 4 –

The Menu explained

11. Main Menu

Config menu selection allows entering the different settings as described below

All selected settings are activated and immediately excepted for “restore factory settings”

11.1. Config menu

11.1.1. Volume

Set volume of speakers

11.1.2. Headphone volume

Set volume of headphone of the CU

11.1.3. Conference modes

General : chairman microphones can always be activated , regardless chosen operating mode

Operating modes

With request

Enables the participant to activate or deactivate a request to have the floor by activating the MIC icon . The request is shown by a green illumination lightbar of the delegate unit. The microphone of the delegate unit that is in request can be activated by the chairman via the NEXT icon . The lightbar of delegate unit will then be illuminated in red.

The chairman can cancel all the active microphones by activating the PRIOR icon .
The chairman can cancel all requests by simultaneously activating the PRIOR and NEXT function.
The request list can take max 64 requests

Direct Access

Enables the participant to turn on his microphone at any time , via the MIC icon . The only limitation here is the maximum number of microphones which are allowed may be active simultaneously.

FIFO (1-8) :

Enables 1 to 8 microphone (depending on max # mic setting - see 10.1.4) at a time to be active without intervention of the conference chairman. Activation of a new microphone overrides the longest active microphone.

11.1.4. Microphone Limit

The maximum open microphones at the same time can be chosen between 1 and 8 . The same amount of chairman units can be activated on top of that , so max 16 microphones can be active at the same time .

11.1.5. Microphone preset

There are 3 limiter gain presets to choose from. The choise between these 3 will depend on the general distance between the speaker and the microphone . This setting influences the sensitivity and the dynamic range of the microphones.

There is also a fixed automatic gain reduction setting that reduces the volume per active microphone depending on the total number of active microphones.

11.1.6. Audio out

The D-Cerno CU has 2 auxiliary output RCA connectors , labeled 1 and 2.

The level of the output signal is adjustable between …?????…….

11.1.7. Audio In

The central unit has two auxiliary inputs , one RCA connector , labeled 1 and 1 XLR connector labeled 2

The input level is adjustable between …?????....

11.1.8. Independent aux settings

Figure 1011.1.8.1: Independant Aux

Auxiliary input and output settings are independent form each other and allow external signal to be added to the floor and to extract the total floor signal

Audio path for Independent Aux settings

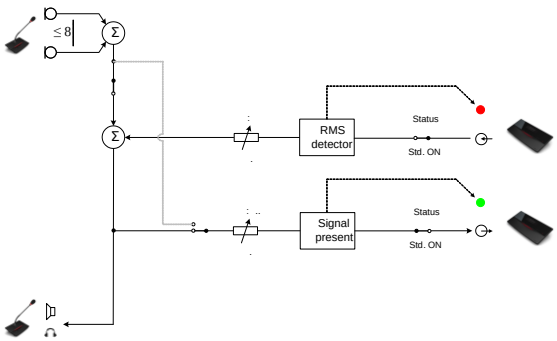


Figure 1011.1.8.2: Independent Aux path

11.1.9. N_1 (Remote Conferencing)

Figure 1011.1.9.1: Aux N_1

Remote conferencing option gives the possibility to connect a central unit to e.g. a video conferencing system or telephone coupler. To prevent echoing the remote conferencing option needs to be set.

Connecting both central units to each other the AUX OUT 1 of one room needs to be connected with the AUX IN 1 of the other room and vice-versa. In both central units the remote conferencing option needs to be activated.

Audio path for N_1

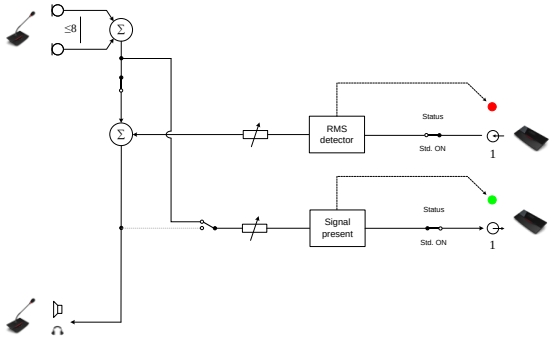


Figure 1011.1.9.2: Aux N_1 path

11.1.10. External Equalizer

Figure 1011.1.10.1: Aux Ext Eq

To avoid feedback or to equalize audio signals it is possible to connect external equipment to the central unit. When this setting is chosen ,the floor signal will be disrupted in a way that all inputs signals

will be directly routed to the AUX OUT . The signal present on AUX IN will be used as the new floor channel. This way it is possible to use external audio equipment like equalizers and feedback destroyers. The schematic below summarizes this feature.

Audio path for external equalizer Mode

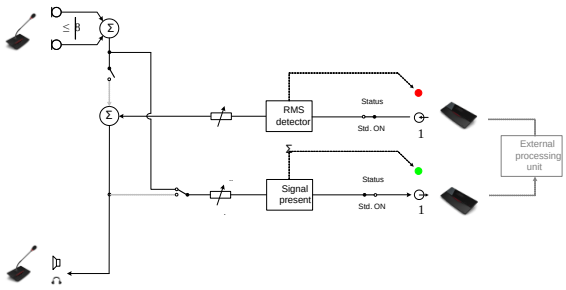


Figure 1011.1.10.2: Aux Ext Eq path

Note:

"N_1" and "External Equalizer" audio paths apply only to Aux In 1 and Aux Out 1.

In N_1 setup mode, Aux Out 1 is considered as "local floor" out and Aux Out 2 is considered as "total floor" out.

Aux Input 1 is used as "Far End input" , so this signal will not be part of the Aux Out 1 signal.

Aux Input 2 (XLR) is used to add a signal (e.g. from external microphones) to the local floor

11.1.11. Chime

When chime is activated , each use of the PRIOR button is followed by a chime sound

11.1.12. ECO

When ECO function is set ON , the CU switches off automatically if during 1 hour ?? no activity and audio signal was detected.

11.1.13. Factory settings reset

When this setting is selected and confirmed , factory settings are restored and CU is rebooted

11.1.14. System info

Displays system info as shown in example below

Type number	**D-Cerno CU**
Software version	**v 1.01**
Serial nr°	**10552685**
Active ports	**1 , 3**
# units configured	**21**
Errors	**None**

Section 5 – Appendix

12. Default Settings juist???

Main Menu Item	Sub Menu Item	Item	Default Value
Conference	Operating Mode	Operating Mode	Direct Access
Conference	Microphone Limit	Microphone Limit	Max. Limit = 4
Conference	Loudspeaker	Volume	6
Conference	Microphones	Limiter Gain	0 dB
Aux-In/Out	Aux Out 1	Volume	18
Aux-In/Out	Aux Out 1	Remote Conference	OFF
Aux-In/Out	Aux Out 2	Volume XLR	24
Aux-In/Out	Aux In 2	Level	18
Aux-In/Out	Aux In 2	Level	18
Aux-In/Out	External Equalizer	External Equalizer	OFF
Language	Choose Language	Language	English